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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,344	12/17/2003	Arianna T. Morales	GP-302303	9697

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EXAMINER

ZIMMERMAN, JOHN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/738,344

Applicant(s)

MORALES ET AL.

Examiner

John J. Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-14,16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-14,16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FOURTH OFFICE ACTION

Amendments

1. This Fourth Office Action is in response to applicant's communication titled "AMENDMENT" received September 19, 2006. Claims 1-2, 4-14 and 16-17 are pending in this application.

Claim Rejections - 35 USC § 112, First Paragraph

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-2, 4-14 and 16-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicant has amended the claims to recite that "said metal foam precursor is adapted to release a blowing agent gas from within said metal foam precursor and into an ambient environment of a forming tool cavity" (e.g. claim 1, lines 6-7; claim 6, lines 5-7) and to recite that "throughout transformation of said metal foam precursor to said metal foam, a

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blowing agent gas is released from within said metal foam precursor and into an ambient environment of a forming tool cavity" (e.g. claim 11, last three lines; claim 17, last three lines).

Although applicant cites paragraphs [0016]-[0018] of the specification as support for this amendment, it is not clear where release of the gas to an "ambient environment of a forming tool cavity" is described in the original disclosure.

Claim Rejections - 35 USC § 112, Second Paragraph

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-2, 4-14 and 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Applicant has amended the claims to recite that "said metal foam precursor is adapted to release a blowing agent gas from within said metal foam precursor and into an ambient environment of a forming tool cavity" (e.g. claim 1, lines 6-7; claim 6, lines 5-7) and to recite that "throughout transformation of said metal foam precursor to said metal foam, a blowing agent gas is released from within said metal foam precursor and into an ambient environment of a forming tool cavity" (e.g. claim 11, last three lines; claim 17, last three lines). It is not clear how the precursor is to be "adapted" within the context of claim interpretation. It is also not clear what the "ambient environment of a forming tool cavity" is or how it relates to the claimed

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subject matter since no prior reference to a forming tool or its cavity is recited in the claims. It is also unclear how the recitation of an "ambient environment of a forming tool cavity" is intended to affect the scope of the claimed article (e.g. claims 1-2 and 6-10) since the claimed article is not in a tool cavity nor is the claimed article necessarily formed in a tool cavity.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-2, 4-14 and 16-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 and 19-24 of copending Application No. 10/738,345 (now U.S. Patent Number 7,100,259) in view of Rashid (U.S. Patent 6,253,588) and Seeliger (U.S. Patent 6,090,232). The pending claims differ from the claims of the copending application mainly in that the pending claims do not recite the die and platen apparatus used in the superplastic or quick plastic forming processes and the copending claims do not recite manufacture of the foam core from a metal foam precursor.

Regarding the recitation of die and platen apparatus, Rashid (e.g. Figure 2) clearly shows that

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quick plastic forming and superplastic forming operations conventionally are done in die and platen apparatuses. There is no patentable distinction between the sets of claims of the pending applications based on the mere recitation of conventional apparatuses necessary to perform the claimed quick plastic forming and superplastic forming method steps. Regarding the lack of recitation of a foam precursor in the claims of the copending application, Seelinger clearly shows that forming metallic foam core structures from foam precursor structures is an obvious step in the art when forming metallic foam core composite structures (e.g. see column 3, lines 13-17; Figure 2). As shown by Seelinger, there is no patentable distinction between the sets of claims of the copending application based on the formation of the metallic foam core from a precursor.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-2, 4-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seeliger (U.S. Patent 6,090,232) in view of Rashid (U.S. Patent 6,253,588).

11. Seeliger discloses a metal foam composite having a curvilinear shape (e.g. see column 3, lines 13-17; Figure 2). The foam metal can be made from a metal powder such as alloyed aluminum and light metal alloys (a term used in the metallurgical art to refer to alloys such as

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aluminum alloys) can be used for the solid metal sheets (e.g. see column 2, lines 14-20). The foam layer can be made by mixing the metal powder with a blowing agent (e.g. see column 2, lines 42-48) to form a foamable semi-finished product. The layers are assembled as shown in Figure 2. Foam alloys of the types described would be expected to have metallic microphases (e.g. applicant's claim 8). Seeliger discloses that the blowing agent is a metal hydride in the prior art (e.g. see column 1, lines 16-23). Seeliger discloses that his metal foam composite can be used for car body panels in providing crash protection (e.g. see column 4, lines 31-44). Seeliger may differ from the claims in that Seeliger may not disclose the use of superplastic forming for the sheet metal in the panels. Rashid, however, discloses that car body panels made with sheet metal can be made more easily using superplastically formable metal materials (e.g. see column 1, first paragraph) and quick plastic forming processes (e.g. see column 1, lines 5-12). Processing steps, forming steps and conditions are disclosed by Rashid (e.g. see claims 1-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use superplastically formable metal materials for the car body panels of Seeliger because Rashid discloses that superplastically formable materials have processing advantages over in car body panel manufacture if complex shapes are needed.

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seeliger (U.S. Patent 6,090,232) in view of Baumeister (U.S. Patent 5,151,246) and further in view of Rashid (U.S. Patent 6,253,588).

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13. Seeliger discloses a metal foam composite having a curvilinear shape (e.g. see column 3, lines 13-17; Figure 2). The foam metal can be made from a metal powder such as alloyed aluminum and light metal alloys (a term used in the metallurgical art to refer to alloys such as aluminum alloys) can be used for the solid metal sheets (e.g. see column 2, lines 14-20). The foam layer can be made by mixing the metal powder with a blowing agent (e.g. see column 2, lines 42-48) to form a foamable semi-finished product. The layers are assembled as shown in Figure 2. Foam alloys of the types described would be expected to have metallic microphases (e.g. applicant's claim 8). Seeliger discloses that the blowing agent is a metal hydride in the prior art (e.g. see column 1, lines 16-23), but does not disclose that the blowing agent is specifically titanium hydride as required by applicant's claim 17. Baumeister, however, discloses that titanium hydride blowing agent is a conventional metal hydride blowing agent that is used with aluminum alloy powders in the prior art (e.g. see Examples 1-7) and Baumeister also discloses typical foaming temperatures for various metal powder and blowing agent mixtures. In view of Baumeister, the use of a mixture of aluminum alloy powder with a titanium hydride blowing agent would have been obvious to one of ordinary skill in the art at the time the invention was made for the metal foam composite of Seeliger because Baumeister shows titanium hydride to be a common metal hydride blowing agent in the prior art and Baumeister also supplies further details on making metal foam compositions and their processing temperatures that Seeliger omits. Seeliger discloses that his metal foam composite can be used for car body panels in providing crash protection (e.g. see column 4, lines 31-44). Seeliger may differ from the claims in that Seeliger may not disclose the use of superplastic forming for the sheet metal in the panels. Rashid, however, discloses that car body panels made with sheet metal can be made more easily

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using superplastically formable metal materials (e.g. see column 1, first paragraph) and quick plastic forming processes (e.g. see column 1, lines 5-12). Processing steps, forming steps and conditions are disclosed by Rashid (e.g. see claims 1-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use superplastically formable metal materials for the car body panels of Seeliger because Rashid discloses that superplastically formable materials have processing advantages over in car body panel manufacture if complex shapes are needed.

Response to Arguments

14. Applicant's arguments filed September 19, 2006 have been fully considered but they are not persuasive.

15. Regarding the rejection under the judicially created doctrine of obviousness-type double patenting over copending Application Serial No. 10/738,345, applicant argues that since the rejection is provisional, applicant will forgo the submission of a terminal disclaimer at this time. Copending Application Serial No. 10/738,345 has now issued as U.S. Patent Number 7,100,259 (September 5, 2006) and therefore the status of the obviousness-type double patenting rejection is no longer provisional.

16. Applicant has amended the claims to recite that "said metal foam precursor is adapted to release a blowing agent gas from within said metal foam precursor and into an ambient environment of a forming tool cavity" (e.g. claim 1, lines 6-7; claim 6, lines 5-7) and to recite

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that "throughout transformation of said metal foam precursor to said metal foam, a blowing agent gas is released from within said metal foam precursor and into an ambient environment of a forming tool cavity" (e.g. claim 11, last three lines; claim 17, last three lines). Although applicant again cites paragraphs [0016]-[0018] of the specification as support for this amendment, it is not clear where the original disclosure supports the amendment. Applicant argues that since the material is highly porous, it would be understood that the highly porous structure would allow for gas to be released from within the blowing agent material, through the adjacent precursor materials, and into the ambient environment of the forming tool cavity. This argument is not convincing since, as shown by Baumeister, highly porous foam can be closed porosity (e.g. column 4, lines 48-65). While it is not always new matter to add matter to the disclosure after the original filing, this practice is usually reserved for inherent characteristics, *Kennecott Corp v. Kyocera International Inc.*, 5 USPQ2d 1194 (Court of Appeals, Fed. Cir. 1987); *In re Davies and Hopkins*, 177 USPQ 381 (CCPA 1973). The Federal Circuit and its predecessor Court of Customs and Patent Appeals, have made it clear that an inherent teaching must be a certainty. An inherent teaching must be a scientific fact that undeniably and irrefutably flows from the express disclosure of the reference, *Hughes Aircraft Co. v. U.S.*, 8 USPQ2d 1580, 1583 (Fed. Cir. 1988). A probability or a possibility or a "may result" are insufficient to establish inherency, *Hansgrig v. Kemmer*, 40 USPQ 665, 667 (CCPA 1939). There is no indication in the original disclosure that said metal foam precursor releases a blowing agent gas from within said metal foam precursor into an ambient environment of a forming tool cavity.

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17. It addition, it is still not clear how the precursor is to be "adapted" within the context of claim interpretation. It is also not clear what the "ambient environment of a forming tool cavity" is or how it relates to the claimed subject matter since no prior reference to a forming tool or its cavity is recited in the claims. It is also unclear how the recitation of an "ambient environment of a forming tool cavity" is intended to affect the scope of the claimed article (e.g. claims 1-2 and 6-10) since the claimed article is not in a tool cavity nor is the claimed article necessarily formed in a tool cavity. In any event, as noted in the prior office action, the term "ambient" conventionally means "surrounding" and since a blowing agent conventionally releases its gas into the surrounding composition to form cells (e.g. open cells and/or closed cells), it is not clear how this limitation distinguishes over the applied prior art. If the metal foam precursor is contained in a forming tool cavity, then any gas released by the metal foam precursor (internally or externally) would be released "within" the environment of the forming tool cavity. It is still unclear whether the cited limitations have support in the original disclosure and, as noted above, it is unclear how they necessarily affect the applicability of the applied prior art.

18. Regarding the rejection of the claims under 35 U.S.C. 103(a) as being unpatentable over Seeliger (U.S. Patent 6,090,232) in view of Baumeister (U.S. Patent 5,151,246) and further in view of Rashid (U.S. Patent 6,253,588), applicant argues that the process of Baumeister is not combinable with the process of Seeliger. A review of the rejection, however, clearly shows that there is no suggestion in the rejection to combine the process of Baumeister into the process of Seeliger. The rejection clearly indicates that Baumeister is applied to show that using a titanium hydride blowing agent with aluminum alloy powder is conventional in the art. This is a very

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basic showing of what is well known in the metallic foam art and the level of ordinary skill in this art. Seeliger sufficiently shows mixing the metal powder with a blowing agent (e.g. see column 2, lines 42-48) to form a foamable semi-finished product and Seeliger discloses that the blowing agent is a metal hydride in the prior art (e.g. see column 1, lines 16-23). Baumeister is only used to show that a conventional metal hydride blowing agent in the prior art is titanium hydride. Contrary to applicant's arguments, there is no suggestion in the rejection to combine the process of Baumeister with the process of Seeliger or vice versa. The examiner has clearly indicated that Baumeister is applied only to show the *fairly disclosed concept* of using various combinations of using titanium hydride blowing agents and metal powders conventionally used in the metal foaming art. There is no indication in the rejection that Baumeister's process or composite construction should be bodily incorporated into Seeliger's invention. It is well settled that the test of obviousness is not whether the features of one reference can be bodily incorporated into the structure of another and proper inquiry should not be limited to the specific structure shown by the references, but should be into the concepts fairly contained therein, *In re Van Beckum*, 169 USPQ 47 (CCPA 1971); *In re Bozek*, 163 USPQ 545 (CCPA 1969); *In re Richman*, 165 USPQ 509 (CCPA 1970); *In re Henley*, 112 USPQ 56 (CCPA 1956); *In re Sneed*, 218 USPQ 385 (Fed. Cir. 1983).

19. Baumeister is only applied in the rejection under 35 U.S.C. 103(a) to show that a titanium hydride is a conventional metal hydride blowing agent in the prior art. Since only applicant's claim 17 requires a titanium hydride blowing agent, Baumeister has been removed from the rejection of claims 1-2, 4-14 and 16 to simplify the rejection of these claims.


Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John J. Zimmerman
Primary Examiner
Art Unit 1775

jjz
December 6, 2006